

No old birds had been seen by them on the rock, and they expressed the opinion that it would be very difficult to procure one; but on this second visit they managed to capture an adult bird in a hole, and found another egg, which, like the first one, proved to be addled. The young Shearwaters uttered a plaintive liquid-sounding note something like *Whitter whitter whit whit wit*.

The adult bird is 13 inches from tip of bill to end of tail, wing $8\frac{1}{2}$ inches; spread of wing 26 inches; bill from point to gape $1\frac{1}{2}$ inch; culmen 1 inch; tarsus $1\frac{1}{2}$ inch. Colour of bill uniform lead-grey, darkening on culmen; iris very dark; legs and feet pearly white with pinkish hue underlying; back of tarsus and outer toe black; underparts of the middle and inner toe likewise black; forehead, crown, back, and tail and wing uniform sooty black; primaries sooty black, the first longest; from chin to vent white, under eyelid white, under wing-coverts white.

VI.—*On the Ornithology of Northern Borneo.* By R. BOWDLER SHARPE, F.L.S. &c., Zoological Department, British Museum. *With Notes* by JOHN WHITEHEAD.

(Plates II.—IV.)

IN the present paper I have commenced a list of all the species of birds procured by my friend Mr. John Whitehead during his four years' travels in Northern Borneo. The chief interest naturally centres round his exploration of the great mountain of Kina Balu, of the avifauna of which a complete account is here, for the first time, attempted. The comparison of the natural history of this mountain with that of Sumatra, Java, and Tenasserim I shall leave till the end of the memoir. The following are Mr. Whitehead's notes on his journeys, and all his observations on the habits of the different species are placed between brackets.

“My first Bornean collections were made in the neighbourhood of Sandakan; the collection was small and contained examples of a few well-known species. In April 1885

(the same year) I left for Gaya Island, hoping to start from there for Kina Balu in the beginning of May. However, as the officials of the British North Borneo Company stated that some of the interior tribes had been raiding as far as the coast in search of heads, and that it was necessary to send a police expedition inland to punish the very tribes I had intended visiting, all idea of reaching Kina Balu during that dry season was abandoned.

“A few days after I left for the Padas River, and spent some three weeks on the higher parts of that river, but as birds were very scarce, and my collections hardly worth the name, I again left for Labuan. In August of the same year I proceeded with three natives to Benkoka, in the north of Borneo, where we remained until the middle of November. On this river my collections were numerous and contained examples of many fine species.

“In February 1886 I again left for Kina Balu, this time reaching the Tampassuk River; but all attempts to find natives to carry my baggage from there inland failed. Some were willing to go but had no buffaloes, others had buffaloes but could not go, or, in true Eastern style, would not give a straight answer. After ten days of fruitless search, it came out that nobody would go inland amongst the Dusan tribes, all stating that it would be unsafe; this I soon heard was perfectly true. The Company's expedition last year never went inland, having received a severe blow on the coast, where seven Bajows ran ‘amuck’ amongst the leaders of the force, and killed the four chief officers, thus leaving the rest without leaders. This year another police expedition was formed, and whilst I was doing my best to obtain buffaloes on the coast, attacked a native chief, killed eight or more of his tribe, and burnt down his village; this having occurred within twenty miles of us, without our knowledge. As the temper of the people inland was roused, it would have been unsafe to travel amongst them, so my expedition was reluctantly abandoned.

“In March 1886 I left for the Lawas River, where I obtained specimens of a few interesting species. The same

year I went to Java and made an interesting collection of mountain-species.

"In January 1887 I again left for Kina Balu, and this time succeeded in reaching the mountain; my collections were made on the western spurs up to 5000 feet. After remaining there for two months and a half, want of provisions and articles for barter caused me to start for the coast. The results of this expedition as regards birds have been published by Mr. R. B. Sharpe in this Journal (see *Ibis*, 1887, pp. 435-454). The same year I left for Palawan, and remained there four months; a list of this collection has also been given (see *Ibis*, 1888, pp. 383-396 & 478-479).

"In December of the same year I again left for Kina Balu, and remained there until the following June. This, my last expedition, was thoroughly successful; I succeeded in reaching the highest altitudes and in making a splendid collection during one month spent at 8000 feet. I made several other expeditions to other parts of the mountain, camping from twenty to twenty-five days in one place.

"The weather during the eight months actually spent on the mountain was extremely wet; sometimes it would rain for three days at a time, and the general average would be about six hours per diem, generally from 1 P.M. till nightfall, thus much precious time was lost, and it was most difficult to dry any specimens collected.

"As I find it impossible to give anything but a sketch of my journeys in this paper, I hope in the near future to publish a full account of my travels."

Order ACCIPITRES.

Suborder *FALCONES*.

Fam. *FALCONIDÆ*.

1. *CIRCUS SPILONOTUS*.

Circus spilonotus, Kaup; Sharpe, Cat. B. i. p. 58; id. *Ibis*, 1876, p. 307, 1877, p. 2; id. P. Z. S. 1879, p. 322; id. *Ibis*, 1879, p. 235.

The series of this Harrier collected by Mr. Whitehead

seems to prove conclusively that the sexes are similar when they are fully adult. The description of the adult female therefore, as given by me in the 'Catalogue of Birds,' is erroneous, and refers only to the young bird.

The following are the dimensions of Mr. Whitehead's series :—

	Total length. in.	Wing. in.	Tail. in.	Tarsus. in.
a. ♂ ad. Abai, N.W. Borneo	18·6	15·35	9·1	3·3
b. [♀] ad. Labuan	20·5	15·8	9·3	3·4
c. ♀ ad. Abai	18·0	14·5	8·7	3·1
d. ♂ ad. Abai	16·5	13·9	8·0	3·05
e. ♀ imm. Abai	17·5	13·7	8·2	2·95
f. ♀ juv. Lawas River	17·3	13·9	8·2	3·1
g. Juv. Labuan	20·5	15·4	9·2	3·45
h. Juv. Labuan	20·0	15·3	8·6	3·5
i. Juv. Paulou Sebang, Malacca	21·5	15·9	8·7	3·3

Young. More or less rufous, especially below; mantle more or less streaked; well-marked shoulder-patch; head varying from fawn-buff to white; centre tail-feathers uniform at first, outer ones brown, more or less mottled with rufous, but not barred. So from early in February. Signs of moult slight.

The fawn-coloured head and light parts often bleach to white, including shoulder-patch and throat, and often have a patch on the breast; the rufous mottling on the tail takes more the form of bars, and the centre feathers are dark brown, tolerably distinctly barred with lighter brown.

In April a female bird shot in full moult from brown plumage is very uniform in character and has a dark head. It has a pure white feather coming on the side of the neck; upper tail-coverts white, with rufous spots. The old tail-feathers are brown, with broad darker brown bars and a great deal of rufous mottling towards the base. The newly moulted feathers are dark ashy grey, with whitish tips, and crossed by five broad blackish bars. No shoulder-mark.

Another female, shot at Abai on the 19th of February, is also in full moult, and seems to illustrate the intermediate stage towards the full plumage. The centre tail-feathers are

grey, with six broad blackish bars; the upper tail-coverts are white, with smaller rufous spots. The under surface is white or buffy white, with broad brown streaks. In this first stage for the first time appears grey in the wing-coverts. It has a shoulder-mark. From the above stage to the fully adult there seems to be one more moult, when the streaks below become paler and narrower, and are in many feathers arrow-head shaped. The whole plumage becomes lighter above, the upper tail-coverts pure white, with scarcely any spots; the tail-feathers pure grey, the centre ones with six dusky grey bars; outer feathers also grey and similarly barred, but the bars tinged with rufous. The grey on the wing and the grey shoulder-patch are well developed, but there is none of the spotting on the back which characterizes the final stage.

The last plumage has a uniform tail and nearly uniform quills. The under surface is white, with streaks on the throat and breast.

[*a.* ♂ ad. Abai. Iris bright yellow; feet dull straw-yellow.

b. Ad. Labuan. Shot during my absence on the first expedition to Kina Balu, between the months of February and April.

c. ♀. Abai, Feb. 19, 1886. This bird seems too small to be a female, but was certainly one by dissection.

d. ♂. Abai, Feb. 22, 1886.

e. ♀. Abai, Feb. 22, 1886.

f. ♀ juv. Lawas River, April 5, 1886.

g, h. Juv. Labuan, Nov. 30, 1885.

i. ♀ juv. Paulou Sebang, Malacca, Feb. 9, 1885. Iris light sepia; feet dull chrome-yellow.]

2. *ASTUR TRIVIRGATUS.*

Astur trivirgatus (T.); Sharpe, Cat. B. i. p. 105; Salvad. Ucc. Born. p. 17 (1874); Sharpe, Ibis, 1876, p. 32, 1879, p. 235.

		Total length. in.	Wing. in.	Tail. in.	Tarsus. in.
a. ♂ ad.	Kina Balu, February	12·75	7·6	5·7	2·5
b. ♀ ad.	Kina Balu, March	14·6	8·3	6·1	2·4
c. ♀ ad.	Kina Balu, March	15·0	8·8	6·8	2·25
d. ♂ juv.	Taguso, Palawan, Sept. . .	14·6	8·1	6·1	2·0

[I met with this bird on Kina Balu at a height of 1000 feet in the middle of March 1887. Both specimens procured on that occasion were adult females; and on my second expedition I met with a male bird in February 1888 at a precisely similar altitude. All had well-developed crests.

In Palawan I only obtained a single specimen, a young male, on the 14th of September. The cere and feet were pale yellow, and the iris light straw-yellow. This specimen was shot at Taguso, on the coast, so that, so far as my observations go, this Goshawk is not found at any great elevation.]

3. *ASTUR SOLOENSIS*.

Astur soloensis (Lath.); Sharpe, Cat. B. i. p. 114; id. Ibis, 1879, p. 235.

Micronisus soloensis, Salvad. Ucc. Born. p. 17 (1874).

a. ♀ juv. Kina Balu, Feb. 26, 1887. Wing 7·8 inches.

[On Kina Balu I only found this Goshawk at a height of 1000 feet, when I shot a young female. Iris king's-yellow; feet and cere similar.]

4. *ACCIPITER VIRGATUS*.

Accipiter virgatus (T.); Sharpe, Cat. B. i. p. 150; Salvad. Ucc. Born. p. 17 (1874).

a. ♂ ad. Kina Balu, Feb. 1887. Wing 6·2 inches.

[This bird is evidently a migrant to Kina Balu, and was obtained under the same circumstances as *Astur soloensis*.]

5. *ACCIPITER RUFOTIBIALIS*. (Plate II.)

Accipiter rufotibialis, Sharpe, Ibis, 1887, p. 437.

Adult male. General colour above dark slaty grey, the feathers blackish on the edges, the head and mantle blacker than the back; quills blackish brown, crossed with bars of

black, from five to six in number; rump, upper tail-coverts, and tail slaty grey, lighter than the back, the tail crossed by four black bands, five in number on the outer feather; lores, sides of face, and ear-coverts sooty black, the cheeks blackish washed with rufous; the under surface of the body rich chestnut, the throat buff, with a central line of blackish streaks; abdomen chestnut, with a few white bars on the upper part, the lower abdomen white with a few broad reddish bars; under tail-coverts white; thighs uniform chestnut; under wing-coverts reddish buff, spotted with black; axillaries whitish, washed with rufous and barred across with dull blackish. Total length 9.3 inches, culmen 0.4, wing 5.95, tail 4.2, tarsus 1.8.

Young male in moult. The first plumage has evidently been brown, with broad ferruginous edges to all the feathers; tail ashy brown, with four black bands, five on the outer feather. The under surface is rufous, like the adult, with remains of the broad black streaks on the chest belonging to the first plumage. Thighs nearly uniform rufous, with slight remains of brown mottling. Total length 9 inches, culmen 0.4, wing 5.7, tail 4, tarsus 1.75.

Since describing this species, I have been able to compare it with specimens of *A. manillensis* in the Tweeddale collection, and I find that it is quite distinct and easily recognizable by its rufous thighs.

[This species seems to be confined to the more open country of Kina Balu, *i. e.* the Dusun clearings. I saw it from 1000 feet to 4000 feet, but it appears to be extremely rare. In fact I only managed to procure two specimens on my first expedition, and in 1888, during my second visit, I only saw three birds, none of which I was able to procure. I was witness to a plucky fight between one of these Sparrow-Hawks and a *Spilornis*, when the former attacked the Eagle with fury and drove him right out of the tree.

On the 30th of March, 1888, a native brought me two eggs, evidently of this Hawk, which had been seen by me about the locality where the nest was found. One egg is of the typical Sparrow-Hawk type. Length 1.45, diam.

1.15 in. Colour greenish white, with the usual reddish blotches towards the larger end. The second egg is nearly spotless. Length 1.5, diam. 1.2 in.]

6. SPIZAETUS LIMNAETUS.

Spizaetus limnaetus (Horsf.); Sharpe, Cat. B. i. p. 272; Salvad. Ucc. Born. p. 15 (1874); Sharpe, Ibis, 1878, p. 415; id. P. Z. S. 1872, p. 322; id. P. Z. S. 1881, p. 791.

The series of skins brought home by Mr. Whitehead does not shake my confidence in the conclusions to which I came in the 'Catalogue of Birds,' excepting that I may be mistaken with regard to the uniform dark brown plumage, which, instead of being characteristic of the fully adult bird only, may be merely a melanistic form, such as we are accustomed to see in the genus *Pernis*, and one liable to occur at any stage of the bird's life.

Leaving aside the uniform black-plumaged bird, which was obtained by Mr. Whitehead only in Palawan, we find in the other six specimens procured four different styles of plumage:—first the white-breasted stage, with a few streaks on the underparts; then a browner stage, streaked with black; a white-breasted bird, with broad streaks; and a bird with nearly uniform brown breast, not, however, approaching the brown melanistic stage.

The following is a list of the specimens:—

- a. ♀ juv. Taguso, Palawan, July 18, 1887. Wing 16.5 in.
- b. ♀ ad. [mel.]. Taguso, Palawan, Sept. Wing 16.5 in.
- c. ♀ ad. Labuan, Dec. 15, 1885. Wing 16.4 inches.
- d. ♂ ad. Labuan, Nov. 1886. Wing 15 inches.
- e. ♂ juv. Labuan, Aug. 14, 1885. Wing 14.75 inches.
- f. ♂ ad. Tampassuk, Feb. 17, 1886. Wing 16.3 inches.
- g. ♀ ad. Tampassuk, Feb. 19, 1886. Wing 15.0 inches.

As far as our present experience goes, there is only one of these Crested Eagles in Bornco. *Spizaetus cirrhatus* of Salvadori's book (p. 13) and *S. limnaetus* (p. 15) are the same species.

[In Palawan this species was decidedly scarce, and I hardly saw another specimen beyond the two procured. In Labuan

it is resident and breeds on the island. The female with the white under surface striped with brown was shot from the nest on the 15th of December. It was paired with a black male, and the nest contained one large white egg, which has since been unfortunately broken. Nos. 579 and 576, from Tampassuk, were a pair, with a nest and eggs. The male is nearly uniform chocolate-brown, while the female is light brown below, streaked with black.]

7. LOPHOTRIORCHIS KIENERI.

Lophotriorchis kieneri (Geoffr.) ; Sharpe, Cat. B. i. p. 256.

Spizaetus kienerii, Salvad. Ucc. Born. p. 16 (1874).

♀ ad. Kina Balu, March 20, 1887. Wing 13·8 inches.

[This is a beautiful adult bird, and was the only one I saw in Borneo. Mr. Wallace had previously procured a specimen in Sarawak, but no one else seems to have met with it. I consider it to be probably only a visitor to Borneo during the N.E. monsoon, as, had it been a resident, I think I must have noticed it on other occasions. My single specimen was procured on my first expedition to Kina Balu at a height of about 1000 feet. Iris dark brown; feet and cere pale chrome-yellow.]

8. NEOPUS MALAYENSIS.

Neopus malayensis (T.) ; Sharpe, Cat. B. i. p. 257.

Onychaetus malayensis, Salvad. Ucc. Born. p. 4 (1874).

a. ♂ ad. Padas River, June 14, 1885.

b. ♂ imm. Tampassuk, Feb. 15, 1886.

[The male from the Padas had the iris hazel and the feet and cere king's-yellow. The younger male has the soft parts exactly as in the old bird. Not seen on Kina Balu, but frequently observed on the large plains near the sea-coast, where I have seen it beating low over the hill-sides.]

9. SPILORNIS BACHA.

Spilornis bacha (Daud.) ; Sharpe, Cat. B. i. p. 290 (1874) ; Salvad. Ucc. Born. p. 7 (1874).

a. ♀ ad. Kina Balu, March 11. Wing 17 inches.

This is apparently the first real instance of the occurrence of

the species in Borneo, as I have no doubt that the young bird recorded by Count Salvadori from Sarawak was merely *S. pallidus*, Walden, a species which Count Salvadori did not recognize in 1874. I have compared Mr. Whitehead's skin with Javan specimens and find that they cannot be separated.

[This Serpent-Eagle replaces the small *Spilornis pallidus* in the higher regions of Kina Balu. I did not meet with it below 3000 feet, and even at these altitudes it was scarce. The crop of the specimen shot was full of lizards and snakes, and I noticed it frequently beating along the dried-up beds of rivers, where it would easily obtain the various rock-lizards on which it preys.]

10. *SPILORNIS PALLIDUS*, Walden; Sharpe, Cat. B. i. p. 290, pl. ix. (1874); id. Ibis, 1876, p. 327, 1877, p. 3; id. P. Z. S. 1881, p. 791.

a. ♂ ad. Benkoka, Marudu Bay, Oct. 2, 1885. Wing 13·75 inches.

b. ♂ ad. Tampassuk, Feb. 26, 1886. Wing 13·75 inches.

[This species is more frequently met with in the jungle than in the open country. I do not remember observing it above 1000 feet on Kina Balu, but my specimens were destroyed by insects.]

11. *BUTASTUR INDICUS*.

Butastur indicus (Gm.) ; Sharpe, Cat. B. i. p. 297 (1874); id. P. Z. S. 1879, pp. 245, 322; id. Ibis, 1879, p. 236.

Poliornis indica, Salvad. Ucc. Born. p. 9 (1874).

a. Juv. Labuan, Nov. 1885. Wing 12·75 inches.

b. ♂ ad. Labuan, Dec. 9, 1885. Wing 12·2 inches.

c. Juv. Benkoka, Oct. 22, 1885. Wing 12·2 inches.

d. ♂ juv. Benkoka, Nov. 3, 1885. Wing 12·5 inches.

e. ♀ juv. Benkoka, Nov. 2, 1885. Wing 12·1 inches.

f. ♂ ad. Benkoka, Nov. 14, 1885. Wing 12·2 inches.

g. ♀ ad. Tampassuk, Feb. 17, 1886. Wing 12·5 inches.

h. ♂ ad. Tampassuk, Feb. 18, 1886. Wing 12·3 inches.

i. ♀ ad. Kina Balu, March 30, 1887. Wing 12·5 inches.

The young birds have a very pronounced eye-streak and very little indication of the broad streak on the throat. The

streaks on the chest evidently become gradually broken up into bars, apparently as much by a change of the pattern of the feather as by a moult. The young feathers before the commencement of the moult show a certain amount of change in the shape of a disruption of the central streak, indicative of the forthcoming banded stage.

[I have observed this species in various parts of Northern Borneo between the end of October and the end of March, and it is evidently only a migrant of the N.E. monsoon. During my ascent of Kina Balu I found it as high as 1000 feet. It is generally met with in open places. A young male had the iris yellowish olive, the feet and cere dull yellow.]

12. HALIAETUS LEUCOGASTER.

Haliaetus leucogaster (Gm.); Sharpe, Cat. B. i. p. 307 (1874); id. Ibis, 1877, p. 3; id. P. Z. S. 1879, p. 323; id. Ibis, 1879, p. 236.

Cuncuma leucogaster, Salvad. Ucc. Born. p. 5.

a. ♀ ad. Abai, Borneo, Dec. 23, 1887.

b. ♂ juv. Abai, Feb. 26, 1886.

c. ♀ juv. Abai, March 10, 1886.

d. ♂ ad. Abai, March 11, 1886.

e. ♀ ad. Taguso, Palawan, Aug. 12, 1887.

[Iris hazel; feet dirty white; skin on face French-blue. Plentiful all round the coast of Borneo, but rarer in Palawan. I found a nest on the 12th of April with nearly-fledged young. The nest was on a dead tree in a forest which had been recently burnt. The nestlings were beautifully speckled, much more so than in the full-grown young birds which were afterwards procured. The nest was full of the remains of sea-snakes, on which this Eagle frequently feeds. One of my specimens is stained on the breast with the ink of the cuttle-fish, which, according to the natives, is also a favourite food of this species.]

13. POLIOAETUS ICHTHYAETUS.

Polioaetus ichthyaetus (Horsf.); Sharpe, Cat. B. i. p. 452; Salvad. Ucc. Born. p. 6.

a. ♂ ad. Benkoka, Sept. 6, 1885. Wing 17·8 inches.

[Iris light hazel; feet greyish blue; Bill black. Brought to me alive by a native.]

14. *HALIASTUR INTERMEDIUS*.

Haliastur intermedius, Gurney; Sharpe, Cat. B. i. p. 314 (1874); id. Ibis, 1876, p. 32; id. P. Z. S. 1879, p. 323; id. Ibis, 1877, p. 3, 1879, p. 236; id. P. Z. S. 1881, p. 791.

Haliastur indus, Salvad. Ucc. Born. p. 12.

a. ♂ ad. Abai, Dec. 24, 1887.

b. ♂ ad. Tampassuk, Feb. 17, 1886.

c. ♀ juv. Tampassuk, Feb. 17, 1886.

d. ♂ juv. Tampassuk, Feb. 17, 1886.

e. ♂ ad. Benkoka, Sept. 27, 1885.

[The young male from Tampassuk had the bill and feet dull greenish yellow. Although I did not bring a specimen from Kina Balu, the bird is found there up to 1000 feet. It is a great robber of chickens, and is much detested by the natives.]

15. *PERNIS PTILONORHYNCHUS*.

Pernis ptilonorhynchus (T.); Sharpe, Cat. B. i. p. 347 (1874); id. P. Z. S. 1881, p. 791.

Pernis ptilorhyncha, Salvad. Ucc. Born. p. 9.

a. Juv. Malacca.

b. ♂ ad. Labuan, Nov. 30, 1885.

c. ♂ ad. Kina Balu, March 20, 1887.

d. ♀ ad. mel. Kina Balu, March 25, 1887.

e. Ad. mel. Taguso, Palawan, Aug. 15, 1887.

[The young bird from Malacca I shot on the 7th of January, 1885, at Paulou Sebang. Iris light straw-yellow; feet yellow. All the Bornean and Palawan birds are old, with grey faces, and two of them have large crests. They are inhabitants of the forest, but do not extend above 1000 feet on Kina Balu.]

16. *MICROHIERAX LATIFRONS*.

Microhierax latifrons, Sharpe, Ibis, 1879, p. 237, pl. vii.; id. P. Z. S. 1881, p. 790.

a. ♀ ad. Benkoka, Sept. 30, 1885.

17. *FALCO COMMUNIS*.

Falco communis, Gm. ; Sharpe, Cat. B. i. p. 376 (1874) ;
 Salvad. Ucc. Born. p. 1 (1874) ; Sharpe, P. Z. S. 1881,
 p. 790.

Falco peregrinus, Sharpe, P. Z. S. 1879, p. 323 ; id. Ibis,
 1879, p. 237.

a. ♂ ad. Labuan, spring of 1886.

b, c. ♂ ♀ juv. Labuan, Dec. 8, 1887.

All three specimens are of the ordinary light form, not the dark richly coloured Peregrine of the Sunda Islands, of which the British Museum possesses a splendid example from the Lawas River.

[Only found during the N.E. monsoon.]

18. *CERCHNEIS TINNUNCULUS*.

Cerchneis tinnunculus (L.) ; Sharpe, Cat. B. i. p. 425 (1874) ;
 id. P. Z. S. 1879, p. 323.

a. ♂ juv. Abai, Dec. 25, 1887.

An immature male, apparently of the dark Chinese form.

[This species is evidently very scarce, and I only noticed it on the large plains of Tampassuk.]

Suborder *PANDIONES*.19. *PANDION HALIAETUS*.

Pandion haliaetus (L.) ; Sharpe, Cat. B. i. p. 449 (1874) ;
 Salvad. Ucc. Born. p. 7 (1874) ; Sharpe, P. Z. S. 1879,
 p. 324.

a. ♀ ad. Abai, Dec. 26, 1887. Wing 19·2 inches.

b. ♀ ad. Abai, Dec. 27, 1887. Wing 18·5 inches.

c. ♀ imm. Abai, Dec. 26, 1887. Wing 18·75 inches.

These birds belong to the large form of Osprey and not to the small Australian race.

[The first female had the iris yellow ; bill black, slaty blue at base of lower mandible ; cere slaty blue ; feet white, with a pale bluish tinge ; claws black. I think that the Osprey is a migrant in Northern Borneo.]

Suborder *STRIGES*.Fam. *BUBONIDÆ*.20. *KETUPA KETUPA*.

Ketupa ketupa (Horsf.); Sharpe, P. Z. S. 1881, p. 791; Salvad. Ucc. Born. p. 20 (1874).

Ketupa javanensis, Less.; Sharpe, Cat. B. ii. p. 8 (1875); id. P. Z. S. 1879, p. 324; id. Ibis, 1879, p. 237.

a. ♀ ad. Benkoka, Nov. 12, 1885.

[Shot in the forest in open places near the paddy-fields in Northern Borneo. I never met with it in my Kina Balu expeditions. In Malacca I shot one at Ayer Panas. Iris pale greenish yellow; bill and feet brownish yellow.]

21. *BUBO ORIENTALIS*.

Bubo orientalis (Horsf.); Sharpe, Cat. B. ii. p. 39 (1875); id. P. Z. S. 1879, p. 245; id. Ibis, 1879, p. 238.

Bubo sumatranus, Salvad. Ucc. Born. p. 19 (1874).

a. ♂ ad. Kina Balu, March 2, 1887. Wing 13·7 inches.

b. ♀ ad. Kina Balu, April 3, 1887. Wing 13·7 inches.

Although there is scarcely any difference in size, there is a marked variation in the colour of this pair. The male is much the lighter of the two, with a good deal of white on the ear-tufts, the wing, scapulars, greater wing-coverts, and end of tail. The female is remarkable for the uniformity of the upper surface, which shows scarcely any white markings. In the character of the light-brown cross-barring both birds are exactly alike. Beneath the male is much the whiter, and has the throat and chest almost similar to the abdomen, the cross-barring being merely rather closer and broader, but the ground-colour is white; whereas in the female there is a distinct contrast between the throat and chest and the rest of the under surface, the former parts being nearly as dark as the upper surface of the body. The male has the under aspect of the quills much more distinctly banded than the female. Of course some of this light coloration of the male bird may be due to youth; but it is, in my opinion, quite an adult bird, though not so old as the female.

[The male had the iris black ; bill light straw-yellow ; feet darker straw-yellow. I met with it at about 3000 feet in the scrubby jungle on the lower spurs of Kina Balu. The female bird was obtained at about the same elevation and in precisely similar situations. I do not think it goes higher up the mountain. The first bird was obtained under curious circumstances. One of my hunters having found a flock of *Staphidia everetti* and other small birds in the jungle, singled out one of them and brought it down with a walking-stick gun. To his astonishment this large Owl came tumbling down along with the little *Staphidia*. The man had not seen the Owl in the thick jungle, and there is no doubt that the small birds had been mobbing the *Bubo*.]

Suborder *STRIGES*.

HETEROSCOPS, gen. n.

Genus simile generi '*Scops*' dicto, sed fasciis auricularibus absentibus, et facie crinibus tenuibus ornata distinguendum. Typus sit

22. HETEROSCOPS LUCIÆ. (Plate III.)

Scops luciæ, Sharpe, Ibis, 1888, p. 478.

Adult female. General colour above tawny rufous, mottled with coarse black vermiculations, giving here and there a spotted appearance ; on the hinder mantle some large ovate fulvous marks, not sufficiently indicated to form a "wig" ; scapulars externally yellowish white, forming a broad streak, with a black spot near the end of the shaft ; upper tail-coverts rather more regularly barred with black ; wing-coverts like the back, but the black vermiculations on the median series more sparsely distributed ; bastard-wing blackish internally, with a chequered pattern of broad black and tawny-buff bars on the outer web ; primary-coverts rufous, with small black vermiculations and feebly indicated bars of black on the outer web ; primaries chequered with black and tawny-buff bars on the outer web, the black more or less mixed with tawny buff ; inner webs blackish ; secondaries rufous, vermiculated with black, scarcely forming any bars ; tail-feathers

black, with a few more or less distinct rufous bars towards the ends; crown of head like the back, but rather more strongly mottled with black bars; forehead tawny rufous, the frontal plumes tipped with black; base of bill beset with long plumes, barred with rufous and black; above the eye a dusky blackish spot; sides of face, ear-coverts, and cheeks rufous, barred with black spots, the auricular plumes produced into hair-like tufts; under surface of body rufous, like the upper surface, with large black spots on the recurved plumes of the upper throat; the black vermiculations much more scanty than on the upper parts, with a few broad interspaces of tawny buff on some of the feathers, giving an appearance of light spots here and there; abdomen whitish; sides of body and flanks like the breast, but with scarcely any trace of black vermiculations; thighs tawny rufous, whitish behind; under tail-coverts white, with a slight rufous tinge; under wing-coverts tawny, with paler buff edges; the edge of the wing mottled with blackish; outer coverts uniform blackish; quills below blackish, barred with tawny on the outer web and with pale tawny buff along the inner webs. Total length 7·8 inches, wing 5·3, tail 2·75, tarsus 1·05.

One male bird is almost of the same tawny rufous as the female described, but is a trifle darker. It differs in no important particulars beyond such as is usual in Scops Owls, viz. rather more or less strongly indicated black spots and vermiculations. The second male is very much darker and browner, and has a good many clear indications of tawny-buff spots on the hind neck. In both males a tawny eyebrow is well marked. In the darker male the black markings on the throat are strongly developed, and behind the ear-coverts there are some whitish bars, giving a slight appearance of a ruff. The wings measure 5·2–5·3 inches, which is about the same as in the female, but the size of the male bird is decidedly smaller.

This little Owl, by reason of its yellow bill, comes nearest to the section of the genus *Scops* which embraces *S. balli* and *S. rufescens*, but on comparison it shows but little similitude to either of those species. The tarsus is bare for half

its length behind, but the feathers come down on the front almost to the junction of the toes. It is not quite so thickly feathered as in *S. rufescens*, but is more so than in *S. balli*. Neither of the last-named species has the whitish abdomen of *Scops luciae*, and the rufous coloration and rufous eyebrow also distinguish it from them, as well as the curious bristly elongations of the shafts of the facial plumage, which have induced me to separate the bird as a distinct genus from *Scops*.

[I first met with this small Owl in the dark and gloomy forests which occur in large patches at about 9000 feet on Kina Balu. The male (No. 1973) had the iris greenish yellow, the green showing especially round the pupil; skin round eye pinkish brown; bill pale yellow, almost white; feet dull white and bare. I never heard the note of any small Owl during my residence of a month at my camp at 8000 feet, and I only got three specimens during my eight months' residence on the mountain. I only met with it at all during my second expedition, and fancy that it must be very rare.

The circumstances under which this little Owl was procured were quite different from those under which I found *Scops lempiji*. The latter bird is always to be seen in the neighbourhood of villages up to about 1000 feet, and its call ('Pwok,' whence the native name) is quite a feature of the localities which it frequents. On the other hand, I never heard *H. luciae* utter a sound.]

23. SCOPS LEMPIJI.

Scops lempiji (Horsf.) ; Sharpe, Cat. B. ii. p. 91 ; Salvad. Ucc. Born. p. 19 (1874) ; Sharpe, Ibis, 1879, p. 238 ; id. P. Z. S. 1881, p. 791.

- a. ♂ ad. Kina Balu, Feb. 1888. Wing 5·65 inches.
- b. ♀ ad. Kina Balu, March 20, 1887. Wing 6·2 inches.
- c. ♂ ad. Kina Balu, March 20, 1887. Wing 6·1 inches.
- d. ♀ ad. Abai, N. Borneo, Feb. 11, 1886. Wing 5·55 inches.

The series exhibits both brown and rufous phases. In the pair procured on the 20th of March the male is rufous

and the female is brown. The female from Abai, on the other hand, is rufous, and the male, shot in February, is very dark brown. These birds show that both sexes partake of the two phases of plumage.

[See my note on *H. luciae* for this Owl, which is a bird of the lower lands. An egg (white; length 1·45 inch, diam. 1·2 inch) was procured with the old bird on the 20th of March, 1888; but as the bird had been captured with gutta-percha, its plumage was too much spoiled for it to be preserved. The natives often catch birds by means of "gutta," which they smear on to a little piece of bamboo. This little stick they fix loosely into a long bamboo, and when they see an Owl or any bird which they can approach silently they lay the "gutta" stick across the back and withdraw the long bamboo. The bird opening its wings with a start attaches them at once to the sticky bamboo-twigg and is caught. Unfortunately the specimens thus obtained are seldom worth preserving.]

24. *SCOPS RUFESCENS*.

Scops rufescens (Horsf.); Sharpe, Cat. B. ii. p. 102 (1875); Salvad. Ucc. Born. p. 19 (1874); Sharpe, P. Z. S. 1879, p. 314; id. Ibis, 1879, p. 238.

a. ♀ ad. Benkoka, Sept. 25, 1885. Wing 5 inches.

b. ♂ ad. Benkoka, Sept. 25, 1885. Wing 4·5 inches.

25. *NINOX JAPONICUS*.

Ninox japonicus (Bp.); Sharpe, P. Z. S. 1879, p. 325.

a. ♂ ad. Lawas River, April 9, 1886. Wing 9·3 inches.

26. *NINOX BORNEENSIS*.

Ninox borneensis (Bp.); Salvad. Ucc. Born. p. 18 (1874).

Ninox scutulata, Sharpe, P. Z. S. 1879, p. 324; id. Ibis, 1877, p. 4, 1879, p. 238; id. P. Z. S. 1881, p. 791.

a. ♂ ad. Benkoka, Oct. 10, 1885. Wing 6·9 inches.

b. ♂ ad. Benkoka, Oct. 30, 1885. Wing 6·9 inches.

c. ♀ ad. Benkoka, Oct. 30, 1885. Wing 6·8 inches.

d. ♀ ad. Labuan, March 20, 1886. Wing 7·0 inches.

The sexes of this Owl are very nearly of the same size, as will be seen by the dimensions of the wings.

[These small Owls are often seen flying about in the early part of the evening, hawking for dragon-flies. I have shot them with the dragon-flies in their claws.]

27. SYRNIUM LEPTOGRAMMICUM.

Syrnium leptogrammicum (T.) ; Sharpe, Cat. B. ii. p. 264 (1875) ; id. Ibis, 1877, p. 4, 1879, p. 238.

Ciccaba leptogrammica, Salvad. Ucc. Born. p. 20 (1874).

a. No. 345, ♂ ad. Benkoka, Oct. 1, 1885.

b. No. 346, ♂ juv. Benkoka, Oct. 1, 1885.

c. No. 347, ♀ ad. Benkoka, Oct. 1, 1885.

d. No. 404, ♂ ad. Benkoka, Oct. 15, 1885.

[The old male (404) had the iris black and the feet slate-blue. These birds were obtained by my hunters at a time when I was ill, so that I know nothing of the habits of the species. It is probably a resident, as the young male has still a good deal of the nestling-plumage adhering to the neck, so that it was evidently bred in the neighbourhood. I never met with this species in Kina Balu, or, in fact, on any of the high lands.]

Order PASSERIFORMES.

Fam. CORVIDÆ.

28. CORONE TENUIROSTRIS.

Corone tenuirostris (Moore) ; Sharpe, P. Z. S. 1879, p. 246 ; id. P. Z. S. 1879, p. 335 ; id. Ibis, 1879, p. 250.

No. 309, ♂ ad. Benkoka, Sept. 17, 1885. Wing 13·4 inches.

No. 1277, ♀ ad. Kina Balu, April 2, 1887. Wing 13·4 inches.

[Rather a scarce species, and never met with in flocks, but generally seen in pairs. I have noticed it on Kina Balu about the Dusan villages up to 1000 feet.]

29. DENDROCITTA CINERASCENS.

Dendrocitta cinerascens, Sharpe, Ibis, 1879, p. 250, pl. viii. ; id. Ibis, 1887, p. 437.

a. ♂ ad. Kina Balu, April 3, 1888. Wing 5·9 inches.

b. ♂ ad. Kina Balu, March 17, 1888. Wing 5·8 inches.

c. ♂ ad. Kina Balu, March 20, 1888. Wing 5·8 inches.

- d. ♀ ad. Kina Balu, March 1, 1888. Wing 5·8 inches.
e. ♀ ad. Kina Balu, March 9, 1888. Wing 5·75 inches.
f. ♀ ad. Kina Balu, March 15, 1888. Wing 5·4 inches.

The figure in the plate (*l. c.*) is, I regret to say, not accurate. It represents the bird with a purely grey back, and black lores and forehead. At first I thought that Mr. Whitehead had got a second species on Kina Balu, but Professor Westwood very kindly sent me the type specimen of my *D. cinerascens* from Oxford, and I now believe that the Kina Balu bird is the same as that from the Lawas, whence came the type specimen. The following amendments are, however, required in the original description and figure. The pale rusty edgings on the tips of the rump and upper tail-coverts, as well as on the head and wing-coverts, are a mark of immaturity, and fully adult birds show no sign of them. The back is brown on the mantle, not uniform blue-grey as figured. The scapulars are delicate grey at the ends (these are all missing in the type). The lores, nasal plumes, and base of forehead are light brown; this is succeeded by a broad black band which reaches above the eye and extends backwards into a dark brown eyebrow, deeper in colour than the ear-coverts.

[This bird is fairly common in Kina Balu from about 1000 feet up to quite 9000 feet. It frequents the thick jungle-growth which springs up after the rice-crops, and in four or five years reaches a height of from 12 to 20 feet. It is also met with at 9000 feet among the big trees in the thick forest, but it is not so common. It has a loud bell-like note, also a cackling cry like that of our common Magpie. Sometimes four or five may be seen together. It builds in the low jungle, constructing a shallow nest of fine twigs. I found one on the 13th of March, 1888, on a low tree in the scrub. It contained two eggs, very Magpie-like in appearance. Length 1·2 in., diam. 0·9 in. The ground-colour is greenish white, dotted all over with brown markings, which increase in size towards the larger end, where there is a blotch of brown, forming a nearly complete ring. Iris light hazel; bill and feet black. Dusan name "Man-tihak."]

30. *CISSA MINOR*.

Cissa minor, Cab. ; Sharpe, Cat. B. iii. p. 86 (1877) ; id. P. Z. S. 1879, p. 335 ; id. Ibis, 1887, p. 437.

Mr. Whitehead has brought a large series of this beautiful Magpie, exhibiting a rare combination of colour, the head ranging from almost gamboge-yellow to ochreous yellow, and the body-plumage from yellow to yellowish green and emerald-green, and even to bright blue. There seems to be no sequence of plumages from one to the other, but we may take it that the younger birds are more bluish green than the old ones. The smallest nestlings are very blue-green, with so little crest that the black band reaches quite round the nape, and there are no crest-feathers to interrupt its outline. Two nestlings, a little further advanced, have more of a yellow tinge, while a full-grown young bird is, again, bluish green except from the fore neck to the vent, where it is emerald-green. The wings of the young birds are brown or reddish brown, not claret-coloured as in the adults. The males have the wing 5.1-5.3 inches, and the females 5.0-5.3.

[Feet and bill vermillion ; iris lake. *Cissa minor* is fairly common in the same kind of scrub-country as is frequented by the *Dendrocitta*, but, unlike that species, it does not ascend Kina Balu, being confined to a level between 1000 and 3000 feet ; it is, indeed, very rare at the latter elevation, though decidedly common lower down. In the early morning and towards evening the Cissas become very garrulous, one bird whistling to another. The notes are many, the most peculiar being a three-syllabled whistle, from which it gets its Dusan name of "Ton-ka-kis." I often shot specimens in the evening by watching the birds as they called to each other from a long distance. As one bird finished whistling it would fly off, and its place would be occupied by another bird, which would again commence calling to its more distant companions. The natives often brought me nestlings in March, but all attempts to rear them failed, as they perished at night-time, apparently from the cold. The nests were found in the thick undergrowth,

and contained two young birds, in one instance three. The two long centre tail-feathers are often much worn, making it difficult to obtain good specimens.

I greatly doubt the fact of Mr. Treacher's specimen of *C. minor* having really come from Labuan, and think there must have been some mistake in the label. The species is such a thorough mountaineer, and would be so utterly out of place in a barren locality like Labuan, that I fancy it must have really come from the Lawas district.]

31. *CISSA JEFFERYI*. (Plate IV.)

Cissa jefferyi, Sharpe, Ibis, 1888, p. 383.

When a series of this species is laid out side by side with a similar series of *C. minor*, a great difference is noticeable at once in the green colour of the bird, which is very decided, and no yellow of any kind appears on the crown. Sometimes a little bright blue can be seen in the plumage of the back, but never appears on the underparts. Independently of the striking differences in the wings and tail-feathers, pointed out by me in my original description, *C. jefferyi*, as seen in a row of specimens, can at once be distinguished from *C. minor* by the much narrower tips to the tail-feathers, and these pale ends are distinctly greenish white.

The males of *C. jefferyi* have the wing 5·25–5·5 inches, and the females 5·2–5·4. A young bird has a blackish bill, the colour is more dingy, and there is no subterminal black band on the tail at all.

[Bill and feet deep lake-red, much darker than in *C. minor*. Iris white, with a faint pink tinge round the pupil. In the young birds the bill is duller in colour, blackish towards the base.

I first met with this beautiful bird at 8000 feet, and I could tell at once, from its note, that it was a different species from *C. minor*, and concluded that it must be a high-land representative of the latter; but when camping at 3000 feet this species was met with again, so that it is evidently the thick forest which divides the two species. While *C. minor* inhabits the more open and cultivated districts, *C. jefferyi*, even at its lowest altitude, never quits the true

forest, and the ranges of the two species never overlap. In April the old birds had their families with them, consisting of two young ones. On the higher slopes of Kina Balu this species was decidedly rarer, and I found it frequenting the twisted and moss-covered trunks near the ground, feeding on snails and probably the small frogs which were numerous. The note is not nearly so clear as that of *C. minor*, but is still a feeble attempt at "Ton-ka-kis."]

32. PLATYSMURUS ATERRIMUS.

Platysmurus aterrimus (T.) ; Salvad. Ucc. Born. p. 279 (1874) ; Sharpe, Cat. B. iii. p. 91 (1877) ; id. Ibis, 1877, p. 20, 1879, p. 251.

a, b. ♂ ; *c.* ♀ ad. Benkoka, Sept. 1885.

d. ♂ ad. Kina Balu, March 20, 1887.

[Bill and feet black ; iris crimson-lake. Not at all Crow-like in its habits, frequenting the middle growth in the jungle. Sometimes two or three are seen in company. One specimen was procured on Kina Balu at nearly 1000 feet.]

VII.—Notes on Birds collected by Dr. G. Radde in the Transcaspian Region. By H. E. DRESSER, F.Z.S.

(Plate V.)

DR. G. RADDE, of Tiflis, has recently sent to me for examination and identification a selection from a collection of birds obtained chiefly by him during his recent journeys in the Transcaspian Region. He purposes to publish a full account of the birds he observed there in the 'Ornis ;' but it may be of interest to the readers of 'The Ibis' to have a few particulars respecting the small selection sent to me, which contains an example of one new species, a most interesting Shrike, and several other birds of interest.

TURDUS ATRIGULARIS, Temm.

An adult male (Germab, 4th March) is in very fine plumage, but has the black feathers on the throat slightly edged with white, and an adult female (Askabad, 18th February, 1886)





